



**SRS Citizens Advisory Board**

**Nuclear Materials Committee**

**Meeting Summary**

**October 21, 2002  
Charleston Riverview Hotel  
Charleston, SC**

---

The Citizens Advisory Board (CAB) Nuclear Materials Committee (NMC) met on Monday, October 21, at the Charleston Riverview Hotel, Charleston, SC. The purpose of the meeting was to discuss the Plutonium Packaging & Stabilization Project and to hear public comment. Attendance was as follows:

**CAB Members**

Ken Goad\*  
Beckie Gaston-Dawson\*  
William Lawrence\*  
Wade Waters\*  
Bill Willoughby\*

**Stakeholders**

Rick McLeod

DNFSB

Todd Davis

**Regulators**

Keith Collinsworth, SCDHEC

Jim Brownlow, SCDHEC

**DOE/Contractors**

Charlie Anderson, DOE

George Mishra, DOE

Teresa Haas, WSRC

John Dickenson, WSRC

Lyddie Broussard, WSRC

\* NMC Members present

\*\* Note: Murray Riley, Jimmy Mackey, and Dorene Richardson are CAB members of the NMC, but were unable to attend this session.

**Welcome and Introduction**

Ken Goad stated that the NMC continues to be interested in all issues that deal with plutonium (Pu) and for this reason had requested the evening's presentation. He welcomed the group and encouraged participation from all stakeholders as John Dickenson presented the current status of the SRS project that will provide a new packaging capability of Pu at the site.

**SRS Plutonium Packaging and Stabilization Project Status**

John Dickenson opened his presentation with a reminder of the ongoing mission to stabilize surplus Pu materials that were left in the production cycle at the end of the cold war. He said that for much of the Pu, the final disposition would be the Mixed Oxide (MOX) Fuel Facility. According to Mr. Dickenson, Pu material that does not meet the MOX specifications is under

evaluation and more information on proposed disposition plans for it is expected to be forthcoming from DOE in the near future. Regardless of the disposition path, Mr. Dickenson emphasized that all SRS Pu materials will be treated and placed into safe interim storage in accordance with all requirements while awaiting final disposition decisions.

He stated that to ensure uniformity in safe Pu packaging, DOE has established specific requirements to ensure material is safely stored for a 50-year period. While it is anticipated that the material will be sent to its final disposition long before the 50-year period has passed, this methodology detailed in DOE-STD-3013 provides assurance that it can be safely stored in the interim. To provide the capability to fully meet this DOE standard, SRS is currently underway with the Packaging and Stabilization Project, and the purpose of this presentation is to explain the activities that will be taking place at SRS in advance of final disposition activities.

According to Mr. Dickenson, the first step is to treat the Pu into a stable form before packaging. Treatment of Pu metal involves brushing it free of any loose Pu oxide, a powder-like substance, before the metal is placed into robust packaging known as 3013 cans. As per the DOE standard, any Pu in oxide form must first be sampled. Treatment of oxide includes heating it to 950 degrees centigrade for two hours to drive off any volatile constituents. Once subsequent sampling confirms that there are no longer any constituents of concern left in the material, the Pu oxide can be placed into a 3013 can.

Mr. Dickenson presented a mock-up of the 3013 packaging configuration consisting of two stainless-steel welded cans placed into an outer can. While the packaging is similar for packaging Pu metal or Pu oxide, he said the inner can for oxide is larger than the one used for metal. As a result, two inner cans containing Pu metal will fit into one outer can while only one inner can of oxide can be placed into an outer can. He further explained that the process requires that both the inner and the outer cans be evacuated and then backfilled with helium. This process ensures an inert atmosphere before the can lid is pressed into place followed by placement of the chill block and the final weld on the can.

Helium leak testing is performed on the cans as one of the extensive quality assurance checks that are included in this packaging program. Visual inspections and radiography are also used as a non-destructive means of evaluating the acceptability of the welds. An additional component of quality assurance is a surveillance program as well as analysis by Los Alamos National Laboratories of a statistically significant sample of Pu containers during the time these containers are in interim storage.

Processing of inner cans with Pu metal has been ongoing in FB-Line since 1997. Mr. Dickenson said the new project provides for the outer can welder as well as a furnace capable of firing the oxides to the desired temperatures. Additional storage racks, digital radiography, and upgrades of other related support equipment are also included in the project. Facility preparations include the training and qualification of operations staff to perform the necessary tasks associated with the new furnaces, outer can welder, and radiography equipment.

When asked how many inner cans of Pu metal have been processed to the 3013 standard since 1997, Mr. Dickenson replied that before answering this question, he would have to verify that the

information could be released to the public. He offered to check into it further and the committee would be notified of the results of the security evaluation.

The project is currently on schedule and is expected to come in under budget. Startup of the outer can packaging phase is projected for April 2003 with the oxide stabilization process ready to startup in October 2003. Packaging activities should be completed by December 2005 and all packages shipped out of FB-Line to the K-Area Material Storage facility by September 2006.

The new packaging capability is being initially installed into the FB-Line facility, but Mr. Dickenson reminded the group that this facility is headed toward deactivation during the next few years. He explained that a long-term surveillance capability would be established outside of FB-Line once the Pu located in FB-Line had been packaged in accordance with the DOE standard. When questioned as to why this new capability had been placed in a facility scheduled for deactivation, Mr. Dickenson explained that the inventory of Pu that requires packaging was located there and it was preferable to do this rather than moving it. He said that when the alternate capability is established, it will include the same process but on a much smaller scale. When asked if the Rocky Flats Pu would require packaging at SRS, he said that any Pu shipment from another DOE site would be shipped in containers that already adhere to the same DOE standard.

Mr. Dickenson fielded additional questions about packaging requirements and shipping containers. In response to questions about radiation and exposure levels, Mr. Dickenson explained that worker protection was incorporated into the design of the packaging process. At-risk activities are conducted in glove boxes. He further explained that radiation levels on the outside of the 3013 packages would be very low and workers would be able to handle the outer cans with simple work gloves.

During the discussion, Ken Goad read to the group from an email sent by Don Moniak. Mr. Moniak questioned why stabilization was even being considered when the 3013 standard requires high-firing of Pu Oxide which is more difficult to dissolve and purify. Mr. Moniak's email states "Oxides heated to 600 to 1000 C 'require somewhat more stringent procedures' when dissolving in acids, and plutonium oxide powder heated to temperatures above 1000 C 'require extreme measures'." Mr. Dickenson responded that while it is true that Pu oxide subjected to high fire temperatures is somewhat more difficult to dissolve in an aqueous solution than those oxides exposed to lower temperatures, he would not agree that it would require extreme measures. He said it does require the right type of equipment that has been designed to perform this operation. He said HB-Line dissolvers are designed with the capability to dissolve high-fired Pu oxides. He further explained that it is true low fired oxide does dissolve a little more easily and faster, but SRS does have the capability to process it when needed. One reason for the high firing of oxides is to make sure that the form is very stable by eliminating all volatile constituents that may not be addressed by subjecting the oxide to lower temperatures.

### **Other Issues**

Additional questions were asked about related Nuclear Material issues. In response to questions about F-Canyon, Mr. Dickenson said that WSRC is drafting a Deactivation Project Plan that will be submitted to DOE for approval. Todd Davis of the Defense Nuclear Facilities Safety Board

(DNFSB) said Assistant Secretary Jesse Roberson has recently met with the Board. He said that the National Defense Authorization Act requires DOE and the DNFSB to provide joint certification for decommissioning of F-Canyon and there is an ongoing dialogue with DOE on the timing of this certification. He stated he would provide a copy of the statute to be included in the meeting summary for their review.

Mr. Goad also asked the status of the evaluation team looking at disposition pathways for other Pu materials in the DOE Complex. Mr. Dickenson said that a DOE team has been chartered and is expected to make their recommendations for Pu materials that are not going to MOX by March 2003.

With no other public comments, the meeting was adjourned.

*Meeting handouts may be obtained by calling 1-800-249-8155.*

### **Follow Up Actions**

1. Question: How many cans of Pu metal have you processed since 1997?

Answer: Since 1997, 484 inner cans of Pu metal have been processed to the 3013 standard.

2. Attachment to Meeting Summary, [Enabling Statute of the Defense Nuclear Facilities Safety Board](#) as Amended by the National Defense Authorization Act